



# Major Technical Projects, State Budget Cycle and the Agile Methodology

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Joint Technology Committee  
September 14, 2020

# Goals of Staff Research

## The Agile Methodology and the Impact on the State Budget Cycle

### **Consider the Legislative Governance of Major Information Technology (IT) Projects**

Any changes in the state budget cycle should provide the appropriate level of legislative oversight without inhibiting the agile iterative “inspect often and adjust” cycles.

### **Encourage Thoughtful Spending**

Changes in the state budget cycle should support cost savings while still adding value.

### **Support Federal Funding in Budget Cycle Process**

Potential federal grants, such as the HITECH Act, may require annual state appropriations and planning documents that may not also be required when using an agile methodology.

### **Provide Relevant Information in IT Budgets Requests to Make Informed Decisions**

With tight state budgets, legislators need quantitative metrics to assess the value and progress of an IT project and its deliverables.



# Joint Budget Committee

On March 10, 2020, the Joint Budget Committee (JBC) requested that the Joint Technology Committee (JTC) provide recommendations of potential changes to the IT budget process to support the state's use of an agile methodology.

On February 28, 2020, the JBC voted to create a new IT capital section in the Long Bill, beginning in 2021, to distinguish between the IT capital appropriations and other capital appropriations.



# Long Bill Headnotes

- The JBC suggests considering using headnotes in the new IT capital construction section
- Headnotes are already used for non-technical capital construction
- Headnotes may provide more flexibility and annual adjustments than changes in statutes
- Consistent communications channel for new members and staff for multiyear IT projects



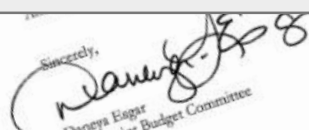
# Joint Budget Committee Letter

## JBC listed six topics to possibly consider

The JBC respectfully requests that the JTC make recommendations to the JBC regarding **changes to the budget process to better accommodate agile development methodology and processes for information technology projects.**

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generally as distinct from building capital in the budget process.  
provide a separate  
this change would be effective in the  
address the unique needs of information technology projects  
The JBC respectfully requests that the Joint Technology Committee (JTC) make recommendations to  
the JBC regarding changes to the budget process to better accommodate agile development  
methodology and processes for information technology projects. Such recommendations may include,  
but need not be limited to:

- The period of appropriation spending authority;
- Expectations or requirements for achieving and reporting progress within the agile development model;
- Standards for reporting cost metrics related to the stages of agile development with comparison to the proposed plan;
- Expectations or requirements for updating and communicating changes to the JTC and JBC for multi-year projects based on advanced progress or challenges experienced within the agile development model;
- Expectations or requirements for updating and communicating changes to the JTC and JBC for anticipated annual operating and ongoing development improvement funding needs at the

Sincerely,  
  
Daneya Esger  
Chair, Joint Budget Committee

cc:  
Carolyn Kampman, JBC Staff Director  
Alfredo Kemm, JBC Staff  
Laina Altman, JTC Staff  
Andrea Denka, JTC Staff  
Jean Billingsley, JTC Staff

# Joint Budget Committee Letter

## JBC Letter: Bullet Number Six

Recommendations for **common language and definitions that best identify and describe legislative oversight and budget process components** relative to the agile development model

# Joint Budget Committee Letter

## IT Capital and Operating Budget Requests Should Use Common Terms

**Staff recommends common terms regardless of the methodology used when communicating with the legislative branch.**

The legislative branch, the Colorado Office of State Planning and Budgeting, and the Governor's Office of Information Technology (OIT) should continue to collaborate to develop analogous project management terms and consistent information that apply to all methodologies to ensure clear communication in the budget requests and in legislative updates



# Definitions: Staff Recommendations in IT Project Terms

## ***Rough order of magnitude (ROM)***

- ROMs are used when less is known (initial stages)
- Contingency based on risks
- As the project progresses, the ROM estimates for the schedule and budget may change
- Any variances in the benchmarks should be explained in subsequent IT Capital Construction (CC) budget requests and in legislative updates

***IT Project Benchmarks:*** ROM estimates for the budget and schedule to provide all of the critical requirements to achieve the IT CC vision and scope

***Scope:*** To set stakeholder expectations, including any exclusions

***Sponsor:*** The department executive who authorized the project and the use of resources





# Joint Budget Committee Letter

## JBC Letter: Bullet Number One

**The period of appropriation spending authority**

REPRESENTATIVES  
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JILL MACGILLIVRAY  
KYLE RICHARDS

SENATORS  
DANIELA MORALES, Vice Chair  
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STAFF DIRECTOR  
CAROLYN KAMPMAN

- Recommendations for common language and definitions that best identify and describe legislative oversight and budget process components relative to the agile development model.

Such recommendations may include recommendations for statutory change. However, as is the case for building capital in the Capital Construction section of the Long Bill, such recommendations may be better specified and incorporated within the head notes section of the Information Technology Projects section of the Long Bill. The head notes provide greater ongoing flexibility and annual adjustment to incorporate lessons learned in the evolution of the budget management of agile development.

The JBC has requested JBC staff to include such recommendations at the staff briefing in November for presentation as early as the 2021 budget cycle. The JBC requests that any recommendations for adjustment to incorporate JTC recommendations into a staff budget briefing be provided to the JBC by October 1, 2020. JBC staff to incorporate JTC recommendations into a staff budget briefing please contact the JBC staff analyst for IT Capital.

Sincerely,

Daneya Esger  
Chair, Joint Budget Committee

cc:  
Carolyn Kampman, JBC Staff Director  
Alfredo Kemm, JBC Staff  
Luisa Altman, JTC Staff  
Andrea Denka, JTC Staff  
Jean Billingsley, JTC Staff

- The period of appropriation spending authority;
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# Staff Recommendation

## JBC Letter: Bullet Number 1

Pursuant to Section 24-75-303, C.R.S., a capital construction appropriation remains available for a period of three years.

- Period of appropriation spending authority should remain the same
- For multiyear projects, IT CC appropriations should be dependent on:
  - the prior fiscal year's budget that is spent and encumbered;
  - the prior fiscal year's planned milestones completed; and
  - adjustments in the planned budget and schedule benchmarks to complete the project's entire scope.



# Traditional and Agile Governance

## Federal Funding

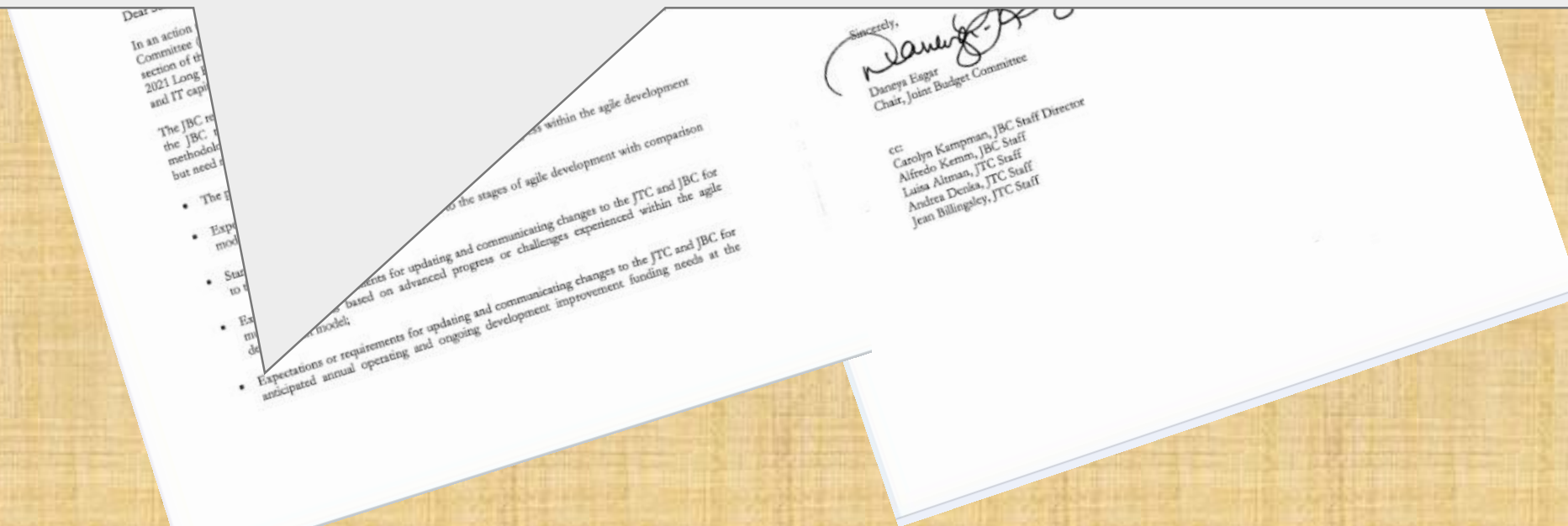
- Federal funding match *may* require traditional planning documentation and a percentage of annual state funding to demonstrate the state support for the project.
- Center for Medicare & Medicaid Services (CMS) and other federal agencies continue to recognize that agile may be advantageous.
- While federal and state governments mature in their agile efforts, continuous improvement in the Colorado budget request procedures is necessary to enable agile teams to meet their objectives



# Joint Budget Committee Letter

## JBC Letter: Bullet Number Five

Expectations or requirements for **updating and communicating changes to the JTC and JBC for anticipated annual operating and ongoing development improvement funding** needs at the completion of initial development that provides for implementation of a minimally viable or acceptable project

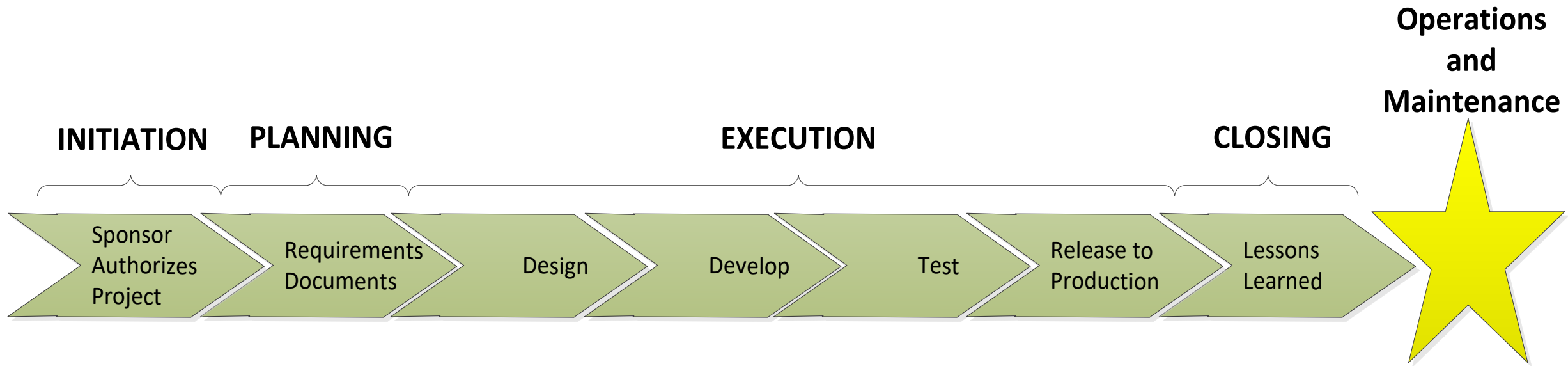




# Project Management Methodologies



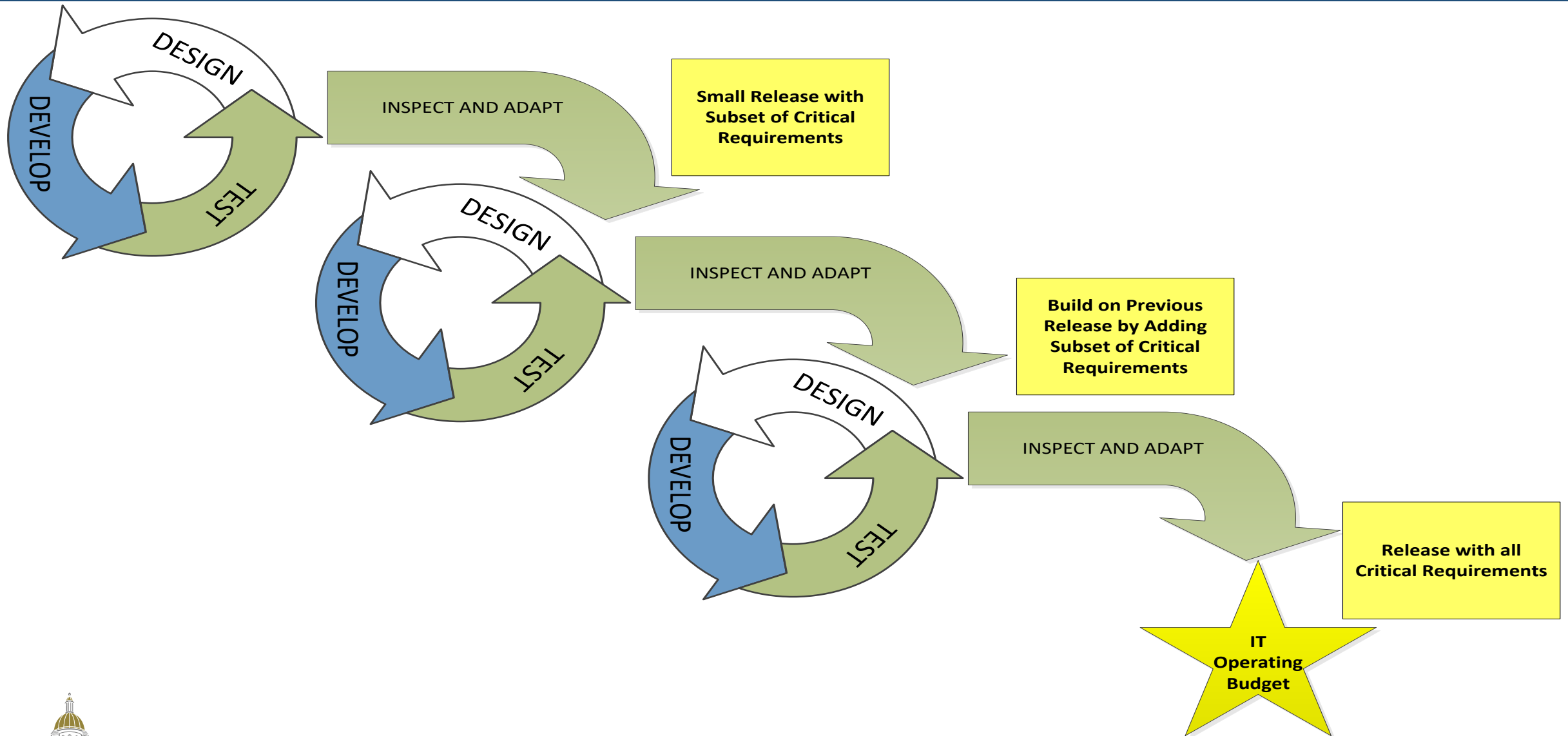
# Traditional Methodology



- Different Types of Traditional Methodologies
- Initiation Phase: Defines Project Vision and Sponsor Authorizes
- Planning Phase: Sometimes Extensive Documentation
- Execution Phase: Documentation is Updated



# Agile Methodology



# Agile Minimum Viable Product

## Traditional Methodology

A system release is not available until number 4.



**1**



**2**



**3**



**4**

## Agile Methodology

Each number represents an agile minimum viable product (MVP), which is a small release that can be shown to the business to give feedback. Even though numbers 1 through 4 represent releases that are built from the previous versions, number 5 represents the release providing critical requirements.



**1**



**2**



**3**



**4**



**5**





# Agile Minimum Marketable (Acceptable) Product

- MVPs ultimately create a Minimum Marketable Product or a Minimum Acceptable Product (MAP)
- A MAP is the smallest possible set of features that addresses the business needs
- The team will try to launch a MAP quickly, with the intention to continue to build the system functionality in future releases
- Scope of MAP in IT CC budget request

System Attributes	MVP	MAP
Purpose	Few features are added to last iteration version to obtain user feedback, then inspect and adapt	Production release that provides all the critical functionality and features that make the IT project a success



# Fictitious Enterprise Management System (ERM)



# Fictitious Enterprise Management System (ERM)

- State-wide system at all executive, legislative and judicial branch departments
- System consists of four components:
  - Customer (citizen) relationship management;
  - Logistics and supply chain management;
  - Financial processing; and
  - Statewide central database instead of various department-level databases.
- Various department-level applications will be decommissioned, including a mainframe system

- 1. Should an IT annualized operating budget be submitted when the department can determine the annual cost to continue building the ERM system?***
- 2. Should the department continue submitting IT CC budget requests until the ERM scope is met and all applicable legacy systems are decommissioned?***



# Staff Recommendations

## JBC Letter: Bullet Number Five

*Expectations or requirements for updating and communicating changes to the JTC and JBC for anticipated annual operating and ongoing development improvement funding needs at the completion of initial development that provides for implementation of a minimally viable or acceptable project*

- IT CC project should remain under the JTC's purview until the IT project's deliverables meet the critical business requirements, including decommissioning impacted existing technology and resources
- Projects should only be annualized in the operating budget after the minimum viable product (MVP) or minimum acceptable product (MAP) provides all the critical requirements



# Joint Budget Committee Letter

## JBC Letter: Bullets Number Two, Three, and Four

***Expectations or requirements for achieving and reporting progress within the agile development model***

***Standards for reporting cost metrics related to the stages of agile development with comparison to the proposed plan***

***Expectations or requirements for updating and communicating changes to the JTC and JBC for multiyear projects based on advanced progress or challenges experienced within the agile development model***

- The period of appropriation spending authority;
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# Joint Budget Committee Letter

## Cultural Change to Support the Agile Method of Iterative Reviews and Updates

The adoption of agile requires a cultural change in project expectations to support the agile recurring iterations to inspect and adapt.

- The first year IT CC budget request includes a ROM estimate with a contingency based on risk
- First year appropriation might appropriate the development of a prototype, proof-of-concept, or system design
- The agile team may make changes that impact the budget, schedule, and scope benchmarks as it discovers more during its agile iterations
- **The agile team should report any changes in the budget, schedule, and scope benchmarks to the legislative branch**
- **Legislators should expect that budget and schedule benchmark estimates may change**
- **Legislators may use the benchmarks to determine if future investments will achieve the stated goals**



# Traditional and Agile Governance

## Multiyear IT CC Budget Requests

Even though agile projects favor visualizing success and outcomes through short-term metrics and deliverables, long-term benefits need to be validated with results that are closer to those of a traditional project governance, such as establishing the scope, and budget/schedule benchmarks.

By using benchmarks for both traditional and agile, leadership and the project team may rely on assurance mechanisms, such as vendor contracts, established budget and schedule benchmarks, and performance metrics.





# Staff Recommendations

## JBC Letter: Bullet Number Four

**Staff recommends that departments provide updates on the following so that legislators may assess the progress of a major IT project:**

- **ten-year system roadmap;**
- **budget, schedule, and scope benchmarks for the entire project; and**
- **annual milestone schedule and corresponding estimated cost.**

**Changes in the budget, schedule, and scope benchmarks and annual estimates should be reported to the JTC through the existing procedures and budget cycle, or when the department deems it necessary or beneficial to the success of the project.** The JTC might also consider the following when completing its oversight of a major IT project:

- deliverables that meet the stated scope, including decommissioning applicable existing technology and resources;
- confirmations from departments that confirms project deliverable(s) meet an acceptable level of functionality and quality; and
- comparisons between projected operating budgets provided in initial budget requests and future annual operating budget requests.





# Legislative Governance

## Approve Transition from an IT Capital Budget to an Annualized Operating Budget

The JTC might also consider the following before ending its oversight of a major IT project.

- Deliverables meet the stated scope, including decommissioning applicable existing technology and resources
- The department project sponsor confirms that the project deliverable(s) meet an acceptable level of functionality and quality
- Comparison between the planned operating budget that was provided in the IT CC budget request and the annual operating budget request



# Ready, Set, Go!

